RWS Group Ltd, of Europa House, Marsham Way, Gerrards Cross, Buckinghamshire, England, hereby declares that, to the best of its knowledge and belief, the following document, prepared by one of its translators competent in the art and conversant with the English and French languages, is a true and correct translation of the accompanying French Patent Application No. 02/11,095 filed on 6 September 2002.

Signed this 4th day of February 2009

N. T. SIMPKIN
Deputy Managing Director - UK Translation Division
For and on behalf of RWS Group Ltd

(19) FRENCH REPUBLIC

INSTITUT NATIONAL DE LA PROPRIETE INDUSTRIELLE

PARIS

(11) **Publication No.:** ***2 844 186***
(To be used only for reprographic orders)

(21) **National Registration No.:** **02/11,095**

(51) Int. Cl.[7]: **A 61 K 7/02**

(12) **PATENT OF INVENTION** **A1**

(22) **Date of filing:** 06.09.02.

(30) **Priority:**

(43) **Date of publication of the application:** 12.03.04 Bulletin 04/11.

(56) **List of documents cited in the search report:** *See the end of this fax*

(60) **References of other relevant national documents:**

(71) **Applicant(s):** *L'OREAL Société anonyme – FR.*

(72) **Inventor(s):** BLIN XAVIER and FERRARI VERONIQUE.

(73) **Proprietor(s):**

(74) **Representative(s):** L'OREAL.

54 **COSMETIC COMPOSITION COMPRISING OILS, A RHEOLOGICAL AGENT AND A PARTICULATE PHASE.**

57 The present invention relates to a composition comprising in a physiologically acceptable medium at least one phenylsilicone oil of high viscosity, at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol and/or a refractive index at 20°C of more than 1.440, at least one rheological agent and a particulate phase.

The composition possesses good properties of staying power, gloss and comfort.

FR 2 844 186 – A1

The present invention relates to a cosmetic composition comprising in a physiologically acceptable medium a high-viscosity phenylsilicone oil, a non-volatile hydrocarbon oil, a rheological agent and a particulate phase. This composition is in particular a care or makeup composition for the skin, both of the human face and of the human body, including the scalp, lips or epidermal derivatives of human beings, such as the hair, eyelashes, eyebrows or nails. The composition possesses notable cosmetic properties, in particular of staying power, and gives the makeup or care product properties of gloss and/or comfort.

The composition of the invention may in particular be in the form of a makeup product for keratin materials (skin, lips, epidermal derivatives), possibly having non-therapeutic treatment and/or care properties. In particular it constitutes a lipstick or lip gloss, a foundation, a loose or compacted powder, a blusher or eyeshadow, a makeup base, a concealer, a tattooing product, a mascara, an eyeliner, a nail varnish, an artificial tanning product, or a haircare or hair colouring product.

The use of silicone compounds in cosmetic compositions, especially makeup compositions, is familiar to formulators. Mention may be made, for example, of EP-A-0407205, which describes a composition comprising the combination of a silicone gum and a silicone oil that has good staying power, spread and comfort properties. In particular this combination imparts excellent sensorial properties to cosmetic compositions, especially a non-greasy feel, spreading properties and lubricity properties, and allows a particularly homogeneous film to be obtained on the skin.

Likewise known is the use of these silicone compounds for the purpose of increasing the staying power of cosmetic compositions, in particular of

makeup. The problems of poor staying power are characterized by a change in colour (colour change, fade) generally as a result of interaction with sebum and/or perspiration secreted by the skin, in the case of foundation and rouge, or of interaction with the saliva in the case of lipsticks. This requires the user to apply fresh makeup at frequent intervals, which may constitute a loss of time.

However, these silicone compounds may sometimes cause formulating problems, and in particular difficulties of dispersing pigments into the compositions comprising silicone media, thereby giving rise to poor development of the hue of the composition and to a granular appearance, which distances the consumer from this type of product, and which is unfavourable to the production of a glossy composition.

But there are numerous cosmetic compositions for which the gloss properties of the deposited film, following application to the keratin materials (skin, lips, epidermal derivatives), are very important. Mention may be made, for example, of lipsticks, eyeshadows, nail varnishes or else certain hair products.

In order to enhance the gloss it is known among formulators to use oils having a high viscosity and a high refractive index, such as oily polymers, for instance polybutenes or certain vegetable oils (castor oil for example). However, these compounds do not make it possible to obtain a film of composition whose staying power, particularly in terms of the gloss, is sufficient for it to last throughout the day.

The applicant has noted surprisingly that the use of the combination of a high-viscosity phenyl-silicone oil, a non-volatile hydrocarbon oil, a rheological agent and a particulate phase makes it possible to obtain a composition which exhibits good cosmetic and sensorial properties, in particular

properties of staying power over time, even after a meal, and also properties of gloss and comfort, and which is not irritant to keratin materials.

The present invention more specifically provides a composition comprising in a physiologically acceptable medium at least one high-viscosity phenylsilicone oil, at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol and/or a refractive index at 20°C of more than 1.440, at least one rheological agent and a particulate phase.

The present invention likewise provides for the use of the combination of at least one high-viscosity phenylsilicone oil, at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol and/or a refractive index at 20°C of more than 1.440 and at least one rheological agent in a composition comprising a physiologically acceptable medium and a particulate phase, the said composition having properties of staying power and/or of gloss and/or of comfort.

The invention likewise provides for the use of the combination of at least one high-viscosity phenylsilicone oil, at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol and/or a refractive index at 20°C of more than 1.440 and at least one rheological agent in a composition comprising a physiologically acceptable medium and a particulate phase, as an agent for imparting staying power and/or gloss and/or comfort to the said composition.

The invention further provides a cosmetic method of imparting properties of staying power and/or gloss and/or comfort to a film of cosmetic composition, which comprises introducing into the said composition an effective amount of at least one high-viscosity phenylsilicone oil, at least one non-volatile hydrocarbon oil having a molecular mass of more than

500 g/mol and/or a refractive index at 20°C of more than 1.440, at least one rheological agent and a particulate phase.

"Physiologically acceptable" means non-toxic and capable of being applied to the skin (including the inside of the eyelids), the lips or the epidermal derivatives of human beings.

"At least" one compound means one or more compounds.

"Oil" means any non-aqueous medium which is liquid at ambient temperature (25°C) and atmospheric pressure (760 mm Hg).

A "non-volatile" compound is a compound capable of remaining on the skin or lips for a number of hours. A non-volatile compound has in particular a non-zero vapour pressure, at ambient temperature and atmospheric pressure, of less than 0.02 mm Hg (2.66 Pa).

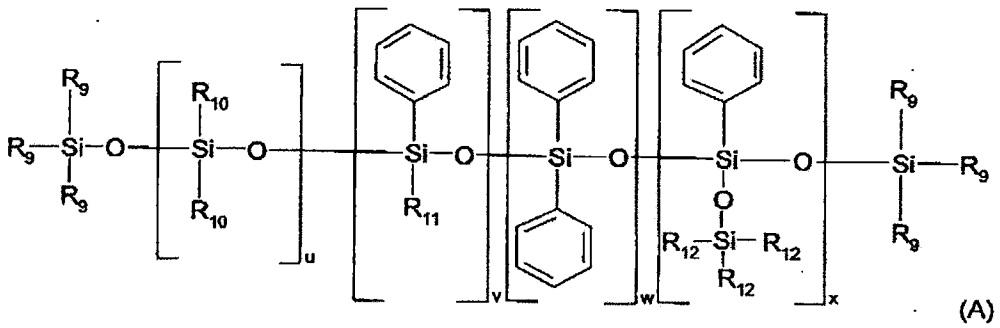
A "volatile" compound is a compound capable of evaporating from the skin or lips in less than an hour. A volatile compound is selected in particular from compounds having a vapour pressure, at ambient temperature and atmospheric pressure, of from 0.02 mm to 300 mm Hg (2.66 Pa to 40 000 Pa) and more preferably from 0.1 to 90 mm Hg (13 Pa to 12 000 Pa).

A "high-viscosity" phenylsilicone oil is an oil having a viscosity of at least 500 cSt at 25°C. The high-viscosity phenylsilicone oil advantageously has a viscosity at 25°C of for example from 500 to 10 000 cSt, preferably from 600 to 5 000 cSt and more preferably from 600 to 3 000 cSt.

The composition according to the invention advantageously further comprises a low-viscosity phenylsilicone oil, which has a viscosity of less than 500 cSt at 25°C. The low-viscosity phenylsilicone oil preferably has a viscosity at 25°C of, for example, from 5 to 499 cSt, preferably from 5 to 300 cSt and

more preferably from 5 to 100 cSt.

The high-viscosity phenylsilicone oil and the low-viscosity phenylsilicone oil (if present) may be, for example, a phenyltrimethicone, a phenyldimethicone, a phenyltrimethylsiloxydiphenylsiloxane, a diphenyl-dimethicone, a diphenylmethyldiphenyltrisiloxane or a mixture of different phenylsilicone oils, and in particular may correspond to the following formula (A):



(A)

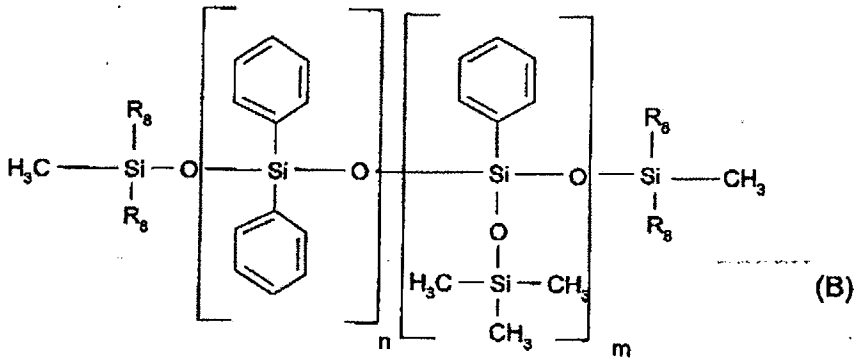
in which:

- R_9 and R_{12} are each independently a C_1-C_{30} alkyl radical, an aryl radical or an aralkyl radical,
- R_{10} and R_{11} are each independently a C_1-C_{30} alkyl radical or an aralkyl radical,
- u, v, w and x are each independently integers from 0 to 900,

with the provisos that the sum v+w+x is other than 0 and that the sum u+v+w+x is from 1 to 900; in particular, u+v+w+x is from 1 to 800.
Preferably v is 0.

The low-viscosity phenylsilicone oil preferably satisfies the formula (A) with the sum u+v+w+x from 1 to 150 and more preferably from 1 to 100, or even from 1 to 50, and the high-viscosity phenylsilicone oil satisfies the formula (A) with sum u+v+w+x from 151 to 900, more preferably from 160 to 800, or even from 160 to 500.

In particular the low-viscosity phenyl-silicone oil satisfies the following formula (B):



(B)

in which:

- R_8 is a C_1-C_{30} alkyl radical, an aryl radical or an aralkyl radical,
- n is an integer from 0 to 100, more preferably less than 100,
- m is an integer from 0 to 100, more preferably less than 100,

with the proviso that the sum m+n is from 1 to 100 and more preferably is less than 100.

High-viscosity phenylsilicone oils which can be used in the invention include the oils 15 M 30 from PCR (500 cSt) or Belsil PDM 1000 (1 000 cSt) from Wacker. The values in brackets represent viscosities at 25°C.

Low-viscosity phenylsilicone oils which can be used in the invention include the oils DC556 (22.5 cSt), SF558 (10-20 cSt) from Dow Corning, Abil AV8853 (4-6 cSt) from Goldschmidt, Silbione 70 633 V 30 (28 cSt) from Rhône Poulenc, 15 M 40 (50 to 100 cSt), 15 M 50 (20 to 25 cSt) from PCR, SF 1550 (25 cSt), PK 20 (20 cSt) from Bayer, Belsil PDM 200 (200 cSt) and Belsil PDM 20 (20 cSt) from Wacker, and KF 53 (175 cSt), KF 54 (400 cSt) and KF 56 (14 cSt) from Shin-Etsu.

The high-viscosity phenylsilicone oil may represent from 5 to 99% of the total weight of the composition, preferably from 7.5 to 80%, more

preferably from 10 to 60% and very preferably from 20 to 50%.

The low-viscosity phenylsilicone oil (if present) may represent from 5 to 99% of the total weight of the composition, preferably from 7.5 to 80%, more preferably from 10 to 60% and very preferably from 10 to 40%.

The ratio by weight between the low-viscosity phenylsilicone oil and the high-viscosity phenyl-silicone oil may be for example from 1/10 to 10/1, preferably from 2/10 to 10/2, more preferably from 3/10 to 10/5. Preferentially this ratio by weight is 1/3.

The composition according to the invention further comprises at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol, preferably more than 600 g/mol and more preferably more than 650 g/mol but not exceeding 15 000 g/mol and/or having a refractive index of more than 1.440 at 20°C (the refractive index being measured in a refractometer), advantageously more than 1.450 and more preferably more than 1.460.

A "hydrocarbon" compound is a compound containing principally atoms of carbon and hydrogen and optionally one or more functional groups selected from hydroxyl, ester, ether and carboxyl functions. These compounds are in particular devoid of -Si-O- groups.

This non-volatile hydrocarbon oil may be selected from:

- lipophilic polymers such as:
  - polybutylenes such as Indopol H-100 (of molar mass or MM = 965 g/mol), Indopol H-300 (MM = 1 340 g/mol), Indopol H-1500 (MM = 2 160 g/mol), which are sold or manufactured by Amoco,
  - hydrogenated polyisobutylenes such as Panalane H-300 E, sold or manufactured by Amoco (M = 1 340 g/mol, refractive index: 1.498), Viseal 20000 sold or manufactured by Synteal (MM = 6 000 g/mol),

and Rewopal PIB 1000, sold or manufactured by Witco (MM = 1 000 g/mol),

- polydecenes and hydrogenated polydecenes such as Puresyn 10 (MM = 723 g/mol) and Puresyn 150 (MM = 9 200 g/mol) sold or manufactured by Mobil Chemicals,

- esters such as

  - linear fatty acid esters having a total carbon number of from 30 to 70, such as pentaerythrityl tetrapelargonate (MM = 697.05 g/mol),
  - hydroxy esters such as diisostearyl malate (MM = 639 g/mol, refractive index: 1.462),
  - aromatic esters such as tridecyl trimellitate (MM = 757.19 g/mol),
  - esters of C24-C28 branched fatty acids or fatty alcohols, such as those described in EP-A-0 955 039, and especially triisocetyl citrate (MM = 856 g/mol), pentaerythrityl tetraisononanoate (MM = 697.05 g/mol), glyceryl triisostearate (MM = 891.51 g/mol), glyceryl 2-tridecyltetradecanoate (MM = 1 143.98 g/mol), pentaerythrityl tetraiso-stearate (MM = 1 202.02 g/mol), poly-2-glyceryl tetraisostearate (MM = 1 232.04 g/mol) or else pentaerythrityl 2-tetradecyltetradecanoate (MM = 1 538.66 g/mol),
  - oils of plant origin such as sesame oil (820.6 g/mol),
  - and mixtures thereof.

The non-volatile hydrocarbon oil is preferably selected from linear fatty acid esters having a total carbon number of from 30 to 70, hydroxy esters, aromatic esters, esters of C24-C28 branched fatty acids or fatty alcohols, and mixtures thereof.

The non-volatile hydrocarbon oil may represent from 5 to 99%, preferably from 10 to 60% and more preferably from 15 to 50% of the total weight of the composition.

The composition according to the invention comprises at least one rheological agent which structures its physiologically acceptable medium.

This rheological agent is capable of thickening and/or gelling the composition. It may be present in an amount effective for increasing the viscosity of the composition, in particular to the point where a solid gel is obtained, which is a product which does not flow under its own weight. In this way it is possible to obtain a stick.

This rheological agent is advantageously selected from waxes, fatty compounds which are pastelike at ambient temperature (25°C), lipophilic gelling agents, and mixtures thereof.

The rheological agent may represent from 0.1 to 65%, preferably from 1 to 50%, more preferably from 3 to 40% and very preferably from 5 to 30% by weight of the total weight of the composition.

A "wax" for the purposes of the present invention is a lipophilic fatty compound which is solid at ambient temperature (25°C) and changes from the solid to the liquid state reversibly, having a melting temperature of more than 30°C and more preferably more than 45°C, which can be as high as 150°C, a hardness of more than 0.5 MPa at ambient temperature, and an anisotropic crystalline organization in the solid state. By taking the wax to its melting temperature it is possible to make it miscible with the oils and to form a microscopically homogeneous mixture, but, by returning the temperature of the mixture to ambient temperature, the wax is recrystallized in the oils of the mixture.

Waxes which can be used in the invention include those generally used in the cosmetics field: they are in particular of natural origin, such as beeswax, carnauba wax, candelilla wax, ouricoury wax, Japan wax, cork fibre wax or sugar cane wax, rice wax,

montan wax, paraffin wax, lignite wax or microcrystalline wax, ceresin or ozokerite, hydrogenated oils such as hydrogenated castor oil or jojoba oil; synthetic waxes such as the polyethylene waxes obtained from the polymerization or copolymerization of ethylene, and Fischer-Tropsch waxes, or else esters of fatty acids, such as octacosanyl stearate, glycerides which are concrete at 30°C and more preferably at 45°C, silicone waxes, such as alkyl- or alkoxydimethicones having an alkyl or alkoxy chain of 10 to 45 carbon atoms, poly(di)methylsiloxane esters which are solid at 30°C and whose ester chain contains at least 10 carbon atoms, or else di(1,1,1-trimethylolpropane) tetrastearate, which is sold or manufactured by Heterene under the name HEST 2T-4S, and mixtures thereof.

The rheological agent preferably comprises a mixture of microcrystalline wax and silicone wax, such as alkyldimethicone wax having a C30-C45 alkyl chain.

The wax or waxes may be present in an amount of from 0.1 to 50% by weight relative to the total weight of the composition, more preferably from 1 to 30% and very preferably from 3 to 25%.

The rheological agent may also be a fatty compound which is pastelike at ambient temperature (25°C). A "fatty compound which is pastelike" means a fatty substance which has a hardness, measured at ambient temperature, of from 0.001 to 0.5 MPa, preferably from 0.005 to 0.4 MPa. A paste also has a melting point of between 20 and 60°C, preferably from 25 to 45°C.

A pastelike compound is a viscous product comprising a solid fraction and a liquid fraction.

These fatty substances are preferably hydrocarbon compounds, optionally polymeric in nature; they may also be selected from silicone compounds and/or fluoro compounds; they may likewise be present in the form of a mixture of hydrocarbon and/or silicone and/or

fluoro compounds. In the case of a mixture of different pastelike fatty substances it is preferred to use the pastelike hydrocarbon compounds in majority proportion.

Pastelike compounds suitable for use in the composition according to the invention include lanolins and lanolin derivatives such as acetylated lanolins, magnesium lanolate or oxypropylenated lanolins and mixtures thereof. It is also possible to use esters of fatty acids or fatty alcohols, especially those having 20 to 65 carbon atoms (with a melting point of the order of 20 to 35°C), such as triisostearyl citrate, arachidyl propionate, and polyvinyl laurate; cholesterol esters; triglycerides of plant origin such as hydrogenated vegetable oils, viscous polyesters such as poly(12-hydroxystearic) acid and mixtures thereof. Triglycerides of plant origin which can be used include derivatives of hydrogenated castor oil, such as Thixinr from Rheox, or else the mixture of triglycerides of lauric, myristic, palmitic and stearic acids which is manufactured or sold under the reference Softisan 100 by Sasol.

Mention may also be made of silicone pastelike fatty substances, such as polydimethyl-siloxanes (PDMS) having pendant chains of the alkyl or alkoxy type having 8 to 24 carbon atoms, and a melting point of 20-55°C, such as stearyl dimethicones, especially those sold by Dow Corning under the trade names DC2503 and DC25514, and mixtures thereof.

The pastelike fatty substance or substances may be present in a proportion of from 0.1 to 60% by weight relative to the total weight of the composition, preferably in a proportion of 1-45% by weight and more preferably still in a proportion of 2-30% by weight in the composition, when they are present.

The lipophilic gelling agent may be organic or mineral, polymeric or molecular. As mineral lipophilic gelling agents mention may be made of

optionally modified clays, such as hectorites modified with a C_{10} to C_{22} fatty acid ammonium chloride, such as hectorite modified with distearyldimethylammonium chloride; pyrogenic silica, optionally having received a hydrophobic surface treatment, whose particle size is less than 1 µm. Polymeric organic lipophilic gelling agents are, for example, partly or totally crosslinked elastomeric organopolysiloxanes, of three-dimensional structure, such as those sold under the names KSG6, KSG16, and KSG18 by Shin-Etsu, Trefil E-505C or Trefil E-506C by Dow Corning, Gransil SR-CYC, SR DMF10, SR-DC556, SR 5CYC gel, SR DMF 10 gel, and SR DC 556 gel by Grant Industries, and SF 1204 and JK 113 by General Electric; ethylcellulose, such as those sold under the name Ethocel by Dow Chemical; copolymers of a C_{36} diacid condensed with ethylenediamine, with a weight-average molecular mass of approximately 6 000, such as the compounds sold by Arizona Chemical under the names Uniclear 80 and Uniclear 100, gums, especially silicone gums, such as the PDMS, having a viscosity > 100 000 centistokes, galactomannans containing from one to six and more preferably from two to four hydroxyl groups per saccharide unit, substituted by saturated or unsaturated alkyl chain, such as guar gum alkylated with C_1 to C_6 and more preferably C_1 to C_3 alkyl chains, and mixtures thereof.

As preferred lipophilic gelling agents use is made of non-polymeric, molecular organic gelling agents, also referred to as organogellers, which are compounds whose molecules are capable of establishing physical interactions between themselves which lead to self-aggregation of the molecules, with formation of a 3D supramolecular network, which is responsible for gelling the liquid fatty phase.

A "liquid fatty phase" for the purposes of the invention is a fatty phase which is liquid at ambient temperature (25°C) and atmospheric pressure (760 mm Hg

or 105 Pa) and is composed of one or more fatty substances which are liquid at ambient temperature, also called oils, which are generally mutually compatible. In particular this liquid fatty phase is composed of the non-volatile hydrocarbon oils described above.

The supramolecular network may result from the formation of a network of fibrils (which are due to stacking or aggregation of organogeller molecules), which immobilizes the molecules of the liquid fatty phase.

The aptitude to form this network of fibrils, and hence to gel, depends on the nature (or chemical class) of the organogeller, on the nature of the substituents carried by its molecules for a given chemical class, and on the nature of the liquid fatty phase.

The physical interactions are diverse but exclude co-crystallization. These physical interactions are, in particular, interactions of the self-complementary hydrogen interaction type, π interactions between unsaturated rings, dipolar interactions, co-ordination bonds with organometallic derivatives, and combinations thereof. Generally speaking each molecule of an organogeller is able to establish a number of types of physical interaction with a neighbouring molecule.

Also, advantageously, the molecules of the organogellers according to the invention include at least one group which is capable of establishing hydrogen bonds and more preferably at least two groups which are capable of establishing hydrogen bonds, at least one aromatic ring and more preferably at least two aromatic rings, at least one or more ethylenically unsaturated bonds and/or at least one or more asymmetric carbons. The groups capable of forming hydrogen bonds are preferably selected from hydroxyl, carbonyl, amine, carboxylic acid, amide, urea and benzyl groups and combinations thereof.

The organogeller or organogellers according to the invention are soluble in the liquid fatty phase after heating to the point where a transparent, homogeneous liquid phase is obtained. They may be solid or liquid at ambient temperature and atmospheric pressure.

The molecular organogeller or organogellers which can be used in the composition according to the invention are in particular those described in "Specialist Surfactants" edited by D. Robb, 1997, pp. 209-263, chapter 8 by P. Terech, European applications EP-A-1068854 and EP-A-1086945, or else in application WO-a-02/47031.

Among these organogellers mention may be made in particular of the amides of carboxylic acids, especially tricarboxylic acids, such as cyclohexane-tricarboxamides (see European patent application EP-A-1068854), diamides having hydrocarbon chains each containing 1 to 22 carbon atoms, for example 6 to 18 carbon atoms, the said chains being unsubstituted or substituted by at least one substituent selected from ester, urea and fluoro groups (see application EP-A-1086945), and especially diamides resulting from the reaction of diaminocyclohexane, especially diamino-cyclohexane in trans form, with an acid chloride such as, for example, N,N'-bis(dodecanoyl)-1,2-diaminocyclo-hexane, amides of N-acylamino acids, such as the diamides resulting from the reaction of an N-acylamino acid with amines containing 1 to 22 carbon atoms, such as, for example, those described in WO-93/23008, and in particular the amides of N-acylglutamic acid in which the acyl group represents a C_8 to C_{22} alkyl chain, such as the dibutyl amide of N-lauroyl-L-glutamic acid, which is sold or manufactured by Ajinomoto under the name GP-1, and mixtures thereof.

The lipophilic gelling agent may represent from 0.1 to 50% by weight, preferably from 1 to 30% by

weight and more preferably from 2 to 20% by weight, relative to the total weight of the composition.

The particulate phase present in the composition according to the invention comprises pigments and/or nacres and/or fillers which are commonly used in cosmetic compositions.

The particulate phase is generally present in a proportion of from 0.01 to 60%, preferably from 10 to 25% by weight, relative to the total weight of the composition.

According to the invention the rheological agent is distinct from the particulate phase and in particular from the filler or fillers optionally present in the particulate phase.

Pigments are to be understood as white or coloured particles, mineral or organic, which are insoluble in the fatty substances such as oils and which are intended for colouring and/or opacifying the composition. Fillers should be understood as meaning colourless or white particles, mineral or synthetic, which are lamellar or non-lamellar. Nacres or nacreous pigments should be understood as meaning iridescent particles, produced in particular by certain molluscs in their shell, or else synthesized.

The pigments may be white or coloured, mineral and/or organic, coated or uncoated, and spherical or oblong. Mineral pigments include titanium dioxide, optionally surface-treated, zirconium oxide or cerium oxide, and zinc oxide, iron oxide (black, yellow, brown or red) or chromium oxide, manganese violet, ultramarine blue, chromium hydrate and Prussian blue. Organic pigments include carbon black, organic lake-type pigments of barium, strontium, calcium or aluminium or else lakes based on cochineal carmine. The pigments may be present in the composition in a proportion of from 0.05 to 40% of the weight of the final composition, preferably in a proportion of from 2

to 20% for a non-pulverulent composition.

The nacres or nacreous pigments may be selected from white nacreous pigments such as mica, covered with titanium or with bismuth oxychloride, coloured nacreous pigments such as titanium mica with iron oxides, titanium mica with, in particular, Prussian blue or chromium oxide, titanium mica with an organic pigment of the aforementioned type, and nacreous pigments based on bismuth oxychloride. It is also possible to use pigments having goniochromatic properties, especially liquid-crystal pigments or multilayer pigments. The nacres may be present in the composition in a proportion of from 0.01 to 20% of the total weight of the composition, preferably at a level of the order of from 1 to 15%.

The fillers may be present in a proportion of from 0.01 to 35% (if present) of the total weight of the composition, preferably 0.5 to 15%. Mention may be made in particular of talc, mica, kaolin, lauroyl-lysine, polyamide powders such as Nylon® (Orgasol in particular) and polyethylene powders, polytetrafluoro-ethylene (Teflon®) powders, starch, boron nitride, copolymer microspheres such as Expancel® (Nobel Industrie), Polytrap® (Dow Corning), Polypore® L 200 (Chemdal Corporation) and silicone resin microbeads (Tospearl® from Toshiba, for example).

The composition of the invention preferably contains little or no volatile oils and in particular less than 10% relative to the total weight of the composition, preferably less than 5% and more preferably less than 2%; advantageously it is free from volatile oil.

The composition according to the invention may further comprise at least one additional non-aqueous compound other than the phenylsilicone oil and the non-volatile hydrocarbon oil with a molecular mass of more than 500 g/mol, the said compound being

selected from oils, gums, resins, lipophilic polymers and mixtures thereof.

The gums which can be used in the invention are present generally in a form in which they are solubilized in an oil, and the resins may be liquid or solid at ambient temperature.

The nature and amount of the gums and resins are a function of the desired textures and mechanical properties.

The additional oils may be hydrocarbon and/or silicone and/or fluoro oils. These oils may be animal, vegetable, mineral or synthetic in origin. Possible examples of additional oil which can be used in the invention include:

- hydrocarbon oils of animal origin, such as perhydrosqualene;
- vegetable hydrocarbon oils, such as liquid triglycerides of fatty acids having 4 to 10 carbon atoms, such as the triglycerides of heptanoic or octanoic acid or jojoba oil;
- linear or branched hydrocarbons of mineral or synthetic origin, such as liquid paraffins and their derivatives, and vaseline;
- synthetic esters and ethers, particularly those of fatty acids, such as the oils of formula R_1COOR_2 in which R_1 represents the residue of a higher fatty acid containing 1 to 40 carbon atoms and R_2 represents a hydrocarbon chain containing from 1 to 40 carbon atoms, where $10 \leq R_1 + R_2 \leq 41$, such as, for example, isopropyl myristate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate and 2-octyldodecyl erucate;
- fatty alcohols having 12 to 26 carbon atoms, such as octyldodecanol, 2-butyloctanol, 2-hexyldecanol, 2-undecylpentadecanol and oleyl alcohol;
- C_8-C_{26} higher fatty acids, such as oleic acid, linoleic acid, linolenic acid or isostearic acid;

- fluoro oils optionally with a partial hydrocarbon and/or silicone fraction;
- silicone oils such as volatile or non-volatile, linear or cyclic polydimethylsiloxanes (PDMS); polydimethylsiloxanes containing alkyl or alkoxy groups having 2 to 24 carbon atoms, pendantly or at the end of the silicone chain;
- and mixtures thereof.

The composition of the invention may further comprise at least one additive commonly used in the field in question, such as water, dyes, aromas, fragrances, antioxidants, preservatives, neutralizing agents, aqueous-phase gelling agents, dispersants, cosmetic actives, and mixtures thereof. This additive, with the exception of water, which may represent from 0.01 to 80% and, for example, from 1 to 70% and more preferably from 1 to 60% of the total weight of the composition, may be present in the composition in a proportion of from 0.0005 to 20% of the total weight of the composition and more preferably from 0.001 to 10%.

A "cosmetic active" is a lipophilic or hydrophilic compound which provides benefit to the keratin materials and more especially to the skin and lips.

Cosmetic actives which can be used in the invention include vitamins A, E, C, B_3 and F, provitamins such as D-panthenol, soothing actives such as α-bisabolol, aloe vera, allantoin, plant extracts or essential oils, protectives or restructuring agents such as ceramides, freshness actives such as menthol and its derivatives, emollients (cocoa butter, dimethicone), moisturizers (arginine PCA), antiwrinkle actives, essential fatty acids, sunscreens, and mixtures thereof.

The person skilled in the art will of course take care to select any complementary additives and/or their amount in such a way that the advantageous

properties of the composition according to the invention are not, or not substantially, adversely affected by the intended addition.

The applications of the composition according to the invention are manifold and relate to all cosmetic products, whether coloured or otherwise, and more particularly to lip makeup products such as lipsticks or lip glosses or else lip pencils.

In one particular embodiment of the invention the composition according to the invention may be in the form of a cast product, and for example in the form of a stick, or in the form of a dish which can be used by direct contact or with a sponge, or else in a heating bag. In particular it is in solid form and in that case is employed as a cast foundation, cast blusher or eyeshadow, lipstick, lipcare base or balm, or concealer product. It may also be in the form of a liquid foundation or lipstick, a lip gloss, a suncare product or a skin colouring product.

The composition of the invention may be anhydrous and may contain less than 5% of added water relative to the total weight of the composition. In that case it may be present in particular in the form of an oily gel, oily liquid, anhydrous paste or stick which comprises in particular a vesicular dispersion of ionic and/or non-ionic lipids.

It may also be present in the form of a single or multiple emulsion with a continuous oily or aqueous phase, or in the form of an oily dispersion in an aqueous phase, brought about by virtue of vesicles containing ionic and/or non-ionic lipids. These formulations are prepared in accordance with methods customary in the fields in question.

The composition according to the invention may be present in the form of a coloured or non-coloured skincare composition, in the form of a sun protection composition or makeup remover composition or else in

the form of a hygiene composition. If it includes cosmetic actives it may then be used as a non-therapeutic treatment or care base for the skin, such as the hands or face, or for the lips (lip balms, protecting the lips from cold and/or sun and/or wind) or as an artificial tanning product.

The composition of the invention may also be present in the form of a coloured skin-makeup product, in particular a face makeup product such as a rouge, a blusher or eyeshadow, a body makeup product such as a semi-permanent tattooing product or a lip makeup product such as a lipstick or lip gloss, possibly having non-therapeutic treatment or care properties, a product for making up the epidermal derivatives, such as, for example, a nail varnish, a mascara, an eyeliner or a haircare or hair colouring product.

The composition according to the invention is present preferably in the form of a lip makeup product such as a lipstick or a lip gloss.

A lip makeup product is present advantageously in anhydrous form.

The composition of the invention must of course be physiologically acceptable: that is, non-toxic and capable of being applied to the skin (including the inside of the eyelids), the lips or the epidermal derivatives of human beings. It is in particular cosmetically acceptable: that is, pleasant in taste, feel, appearance and/or odour and capable of being applied several times a day for a number of months.

The composition according to the invention may be manufactured by known processes which are generally used in the cosmetics field.

The aim of the examples which follow is to give a non-limitative illustration of the subject-matter of the present invention. The amounts are given as percentages by mass.

Examples 1 to 4: Comparative tests - lipsticks

The compositions featuring in Table (1) below are as follows:

- the composition of Example 1 comprises a silicone oil, cyclopentasiloxane;
- the composition of Example 2 comprises a volatile hydrocarbon oil, isododecane, with a molecular mass of 170 g/mol;
- the composition of Example 3 comprises a non-volatile hydrocarbon oil, isononyl isononanoate, having a molecular mass of 284 g/mol and a refractive index of 1.436;
- the composition of Example 4 according to the invention comprises diisostearyl malate having a molecular mass of 639 g/mol and a refractive index of 1.462.

Table (1)

Phase		Example 1 (comparative)	Example 2 (comparative)	Example 3 (comparative)	Example 4 (inventive)
A	Cyclopentasiloxane	30			
	Isododecane		30		
	Isononyl isononanoate			30	
	Diisostearyl malate				30
	Phenyltrimethyltrisiloxane (20 cSt) manufactured or sold by Dow Corning as DC 556	18	18	18	18
	Phenyltrimethyltrisiloxane (1 000 cSt) manufactured or sold by Wacker as Belsil PDM 1000	qs 100	qs 100	qs 100	qs 100

Phase		Example 1 (comparative)	Example 2 (comparative)	Example 3 (comparative)	Example 4 (inventive)
B	Microcrystalline wax	10	10	10	10
	C_{30}-C_{45} alkyl-dimethicone	2.5	2.5	2.5	2.5
	Mixture of tri-glycerides of lauric, myristic, palmitic and stearic acids (50/20/10/10) manufactured or sold as Softisan 100 by Sasol	10	10	10	10
C	Red 7	0.26	0.26	0.26	0.26
	Red 21	0.06	0.06	0.06	0.06
	Black iron oxide	0.09	0.09	0.09	0.09
	Brown iron oxide	2.1	2.1	2.1	2.1
	Titanium oxide mica	1.8	1.8	1.8	1.8

Procedure

The pigments (Phase C) are ground in the diisostearyl malate of Phase A and the ground product is then mixed with Phase B (waxes and pastes) and with the remainder of Phase A. The mixture is heated in a jacketed pot for at least 30 minutes after the waxes have totally melted.

The resultant paste is cast in a mould appropriate for sticks, which is heated at 40-42°C and then held at -18°C for half an hour. The sticks are then demoulded.

Cosmetic evaluation

The 4 lipsticks were evaluated by 5 qualified persons according to various criteria.

The sticks of Examples 2 and 3 were judged to have poor deposition properties owing to an excessively soft consistency; the stick of Example 1 was adjudged

to deposit well on the lips but to exhibit a loss of gloss over time.
The stick of Example 4 according to the invention was adjudged to deposit well and the film of composition was adjudged to be homogeneous and glossy.

Example 5: Lipstick

Phase		
A	Diisostearyl malate	qs 100
	Phenyltrimethyltrisiloxane (20 cSt) manufactured or sold by Dow Corning as DC 556	18
	Phenyltrimethyltrisiloxane (1 000 cSt) manufactured or sold by Wacker as Belsil PDM 1000	27
B	Microcrystalline wax	10
	C30-C45 alkyl dimethicone	2.5
	Mixture of triglycerides of lauric, myristic, palmitic and stearic acids (50/20/10/10) sold or manufactured as Softisan 100 by Sasol	10
C	Red 7	0.26
	Red 21	0.06
	Black iron oxide	0.09
	Brown iron oxide	2.1
	Titanium oxide mica	1.8

The procedure is the same as that of Examples 1 to 4.

Cosmetic evaluation

The staying power of this composition was evaluated using instrumental and sensorial methods on a panel of 12 qualified persons, who applied the lipstick.

The staying power is evaluated as follows:
- in a first phase, an evaluation of the overall "sensorial" staying power is carried out one hour after application of the formula to the lips.
- in a second phase, an "instrumental" staying power is evaluated after a series of tests which consist in making two "bites" on a paper tissue, drinking a hot

drink and then a cold drink and eating 4 bites of a sandwich and of an apple.

The sensorial staying power is evaluated on a scale from 1 to 10: 1 corresponds to a formula which has no staying power at all and 10 to a formula whose staying power is very good.

The instrumental staying power is evaluated on a scale from 1 to 100: 1 corresponds to a formula which has no staying power at all and 100 to a formula whose staying power is very good.

The gloss and comfort were also evaluated by these 12 individuals:

- the gloss was evaluated just after the application of the formula and then after one hour (the instrumental gloss is evaluated on a scale ranging from 1 to 200. 1 corresponds to a formula which is not glossy at all and 200 to a very glossy formula.

The instrumental gloss is measured with the aid of a gloss meter, conventionally, by the following method. A Leneta contrast chart referenced Form 1A Penopac is spread with a layer of the composition, 50 µm thick, whose average brightness is to be evaluated, using an automatic spreader. The layer covers at least the white background of the chart. Then the brightness is measured at 20° on the white background using a Byk-Gardner micro Tri-Gloss gloss meter.

- the comfort was evaluated after one hour.

Results

		Staying power	**Gloss**	**Comfort**
Sensorial evaluation	On application		6.3	
	After 1 hour	6.4	4.8	7.4
Instrumental evaluation	On application		171	
	After 1 hour	82	138	
	After tests	54		

The composition has good cosmetic properties, in particular of gloss and comfort, and its staying power over time is highly satisfactory.
The application (ease of application and lubricity) of the film of composition was also adjudged to be satisfactory.

CLAIMS

1. Composition comprising in a physiologically acceptable medium at least one phenyl-silicone oil with a high viscosity, at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol and/or a refractive index at 20°C of more than 1.440, at least one rheological agent and a particulate phase.

2. Composition according to the preceding claim, characterized in that the non-volatile hydrocarbon oil has a molecular mass of more than 600 g/mol.

3. Composition according to one of the preceding claims, characterized in that the non-volatile hydrocarbon oil has a refractive index at 20°C of more than 1.450.

4. Composition according to one of the preceding claims, characterized in that the non-volatile hydrocarbon oil is selected from polybutylenes, hydrogenated polyisobutylenes, polydecenes, hydrogenated polydecenes, linear fatty acid esters having a total carbon number of from 30 to 70, hydroxy esters, aromatic esters, esters of C24-C28 branched fatty acids or fatty alcohols, oils of plant origin and mixtures thereof.

5. Composition according to one of the preceding claims, characterized in that the non-volatile hydrocarbon oil is selected from pentaerythrityl tetrapelargonate, diisostearyl malate, tridecyl trimellitate, triisocetyl citrate, pentaerythrityl tetraisononanoate, glyceryl triisostearate, glyceryl 2-tridecyl tetradecanoate, pentaerythrityl tetraisostearate and mixtures thereof.

6. Composition according to one of the preceding claims, characterized in that the non-volatile hydrocarbon oil represents from 5 to 99%, preferably from 10 to 60% and more preferably from 15

to 50% of the total weight of the composition.

7. Composition according to one of the preceding claims, characterized in that the high-viscosity phenylsilicone oil has a viscosity at 25°C of from 500 to 10 000 cSt.

8. Composition according to one of the preceding claims, characterized in that the high-viscosity phenylsilicone oil has a viscosity at 25°C of from 600 to 5 000 cSt.

9. Composition according to one of the preceding claims, characterized in that the high-viscosity phenylsilicone oil has a viscosity at 25°C of from 600 to 3 000 cSt.

10. Composition according to one of the preceding claims, characterized in that the high-viscosity phenylsilicone oil represents from 5 to 99% by weight of the composition.

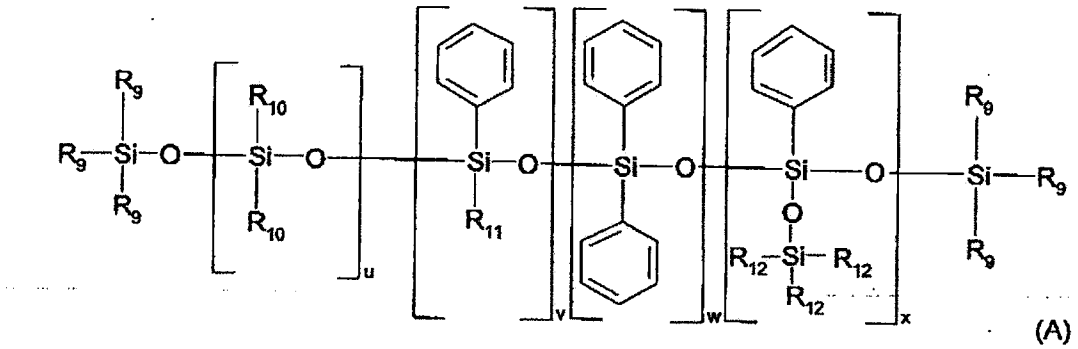
11. Composition according to one of the preceding claims, characterized in that it further comprises a phenylsilicone oil with a low viscosity.

12. Composition according to the preceding claim, characterized in that the low-viscosity phenylsilicone oil has a viscosity at 25°C of from 5 to 499 cSt.

13. Composition according to Claim 11 or 12, characterized in that the low-viscosity phenylsilicone oil has a viscosity at 25°C of from 5 to 300 cSt.

14. Composition according to one of Claims 11 to 13, characterized in that the low-viscosity phenylsilicone oil has a viscosity at 25°C of from 5 to 100 cSt.

15. Composition according to one of the preceding claims, characterized in that the high-viscosity phenylsilicone oil and/or the low-viscosity phenylsilicone oil are/is selected from the oils of following formula (A):



(A)

in which:

- R_9 and R_{12} are each independently a C_1-C_{30} alkyl radical, an aryl radical or an aralkyl radical,
- R_{10} and R_{11} are each independently a C_1-C_{30} alkyl radical or an aralkyl radical,
- u, v, w and x are each independently integers from 0 to 900,

with the provisos that the sum v+w+x is other than 0 and that the sum u+v+w+x is from 1 to 900; in particular, u+v+w+x is from 1 to 800.

16. Composition according to one of Claims 11 to 15, characterized in that the low-viscosity phenylsilicone oil represents from 5 to 99% by weight of the composition.

17. Composition according to one of Claims 11 to 16, characterized in that the ratio by weight between the low-viscosity phenylsilicone oil and the high-viscosity silicone oil is from 1/10 to 10/1.

18. Composition according to one of Claims 11 to 17, characterized in that the ratio by weight between the low-viscosity phenylsilicone oil and the high-viscosity silicone oil is from 2/10 to 10/2.

19. Composition according to one of Claims 11 to 18, characterized in that the ratio by weight between the low-viscosity phenylsilicone oil and the high-viscosity silicone oil is from 3/10 to 10/5.

20. Composition according to one of the preceding claims, characterized in that the rheological agent is selected from waxes, fatty compounds which are

pastelike at ambient temperature (25°C), lipophilic gelling agents and mixtures thereof.

21. Composition according to one of the preceding claims, characterized in that the rheological agent represents from 0.1 to 65%, preferably from 1 to 50%, more preferably from 3 to 40% and very preferably from 5 to 30% of the total weight of the composition.

22. Composition according to Claim 20 or 21, characterized in that the wax is selected from beeswax, carnauba wax, candelilla wax, ouricoury wax, Japan wax, cork fibre wax or sugar cane wax, rice wax, montan wax, paraffin wax, lignite wax or microcrystalline wax, ceresin or ozokerite, hydrogenated oils such as hydrogenated castor oil or jojoba oil; synthetic waxes such as the polyethylene waxes obtained from the polymerization or copolymerization of ethylene, and Fischer-Tropsch waxes, or else esters of fatty acids, such as octacosanyl stearate, glycerides which are concrete at 30°C and more preferably at 45°C, silicone waxes, such as alkyl- or alkoxydimethicones having an alkyl or alkoxy chain of 10 to 45 carbon atoms, poly(di)methylsiloxane esters which are solid at 30°C and whose ester chain contains at least 10 carbon atoms, or else di(1,1,1-trimethylolpropane) tetra-stearate and mixtures thereof.

23. Composition according to Claim 21 or 22, characterized in that the wax represents from 0.1 to 50% by weight relative to the total weight of the composition, more preferably from 1 to 30% and very preferably from 3 to 25%.

24. Composition according to Claim 20, characterized in that the pastelike fatty compound is selected from lanolins and lanolin derivatives, esters of fatty acids or fatty alcohols having 20 to 65 carbon atoms, cholesterol esters, triglycerides of plant origin, viscous polyesters and mixtures thereof.

25. Composition according to the preceding

claim, characterized in that the pastelike fatty compound represents from 0.1 to 60%, preferably from 1 to 45% and more preferably from 2 to 30% by weight relative to the total weight of the composition.

26. Composition according to Claim 20, characterized in that the lipophilic gelling agent is an organogeller.

27. Composition according to the preceding claim, characterized in that the organogeller is selected from amides of tricarboxylic acid, diamides having hydrocarbon chains each containing 1 to 22 carbon atoms, the said chains being unsubstituted or substituted with at least one substituent selected from ester, urea and fluoro groups, the amides of N-acyl-amino acids, and mixtures thereof.

28. Composition according to either of Claims 26 and 27, characterized in that the organogeller is selected from cyclohexanetri-carboxamides, diamides resulting from the reaction of diaminocyclohexane and an acid chloride, diamides resulting from the reaction of an N-acylamino acid with amines containing 1 to 22 carbon atoms, and mixtures thereof.

29. Composition according to one of Claims 26 to 28, characterized in that the lipophilic gelling agent represents from 0.1 to 50%, more preferably 1 to 30% and very preferably from 2 to 20% by weight relative to the total weight of the composition.

30. Composition according to one of the preceding claims, characterized in that the particulate phase comprises pigments and/or nacres and/or fillers.

31. Composition according to one of the preceding claims, characterized in that the particulate phase is present in a proportion of from 0.01 to 60%, preferably 5 to 25% by weight, relative to the total weight of the composition.

32. Composition according to one of the preceding claims, characterized in that it comprises an additional non-aqueous compound.

33. Composition according to one of the preceding claims, characterized in that it is in the form of a product for making up and/or caring for the face or the body, lips and/or epidermal derivatives.

34. Composition according to one of the preceding claims, characterized in that it is in the form of a lip makeup product.

35. Composition according to the preceding claim, characterized in that it is in anhydrous form.

36. Use of the combination of at least one high-viscosity phenylsilicone oil, at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol and/or a refractive index at 20°C of more than 1.440 and at least one rheological agent in a composition comprising a physiologically acceptable medium and a particulate phase, the said composition having properties of staying power and/or of gloss and/or of comfort.

37. Use of the combination of at least one high-viscosity phenylsilicone oil, at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol and/or a refractive index at 20°C of more than 1.440 and at least one rheological agent in a composition comprising a physiologically acceptable medium and a particulate phase, as an agent for imparting staying power and/or gloss and/or comfort to the said composition.

38. Cosmetic method of imparting properties of staying power and/or gloss and/or comfort to a film of cosmetic composition, which comprises introducing into the said composition an effective amount of at least one high-viscosity phenylsilicone oil, at least one non-volatile hydrocarbon oil having a molecular mass of more than 500 g/mol and/or a refractive index

at 20°C of more than 1.440, at least one rheological agent and a particulate phase.